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## Conclusive evidence for the continuing existence of the Madagascar Serpent-eagle *Eutriorchis astur*

by C. J. Raxworthy & P. R. Colston

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The Madagascar Serpent-eagle *Eutriorchis astur* is one of the rarest birds of prey in the world. It is known from only eleven museum specimens (Ferguson-Lees *et al.* in press), the last of which were collected between 1928 and 1930 (Dee 1986). There have been several possible sight records in recent decades from Marojejy Reserve, in northeastern Madagascar. A Malagasy forestry official reported four or five sightings of a raptor that may have been the Madagascar Serpent-eagle in Marojejy between 1964 and 1977 (Collar & Stuart 1985). Sheldon & Duckworth (1990) have recently provided a detailed account of their observation of a Madagascar Serpent-eagle, which was made in 1988 in the Marojejy Reserve (14°21'S, 49°38'E) at 850–900 m.

Some uncertainty, however, is always likely to result from sight reports of the Madagascar Serpent-eagle due to its close similarity in size and plumage to the sympatric Henst's Goshawk *Accipiter henstii* (Langrand 1990). The similarity between the two species is so great that three museum specimens of the Madagascar Serpent-eagle were originally misidentified as Henst's Goshawk (Sheldon & Duckworth 1990).

During February and March 1990, the Madagascar Environmental Research Group (MERG) undertook a faunal survey of the Ambatovaky Special Reserve, with an eight member research team of Malagasy and British zoologists. On 23 February 1990, CJR found an almost fully

decomposed body of a large raptor by a trail, and collected the skull (including lower jaw) and three primary feathers, for identification. It would have been possible to have collected the entire skeleton and most of the feathers, but sadly at the time of discovery the importance of this material was not known. The raptor was identified by P. R. Colston as *Eutriorchis astur*, and this was subsequently confirmed by G. S. Cowles, C. Edelstam, I. J. Ferguson-Lees, S. Goodman and D. Mead.

#### *Specimen description*

The skull (BM S/1991.11.1) measures 79 mm maximum length, maximum width 47 mm, maximum depth 34.5 mm. The rhamphotheca is missing, but otherwise the skull and lower jaw are entire. This is the only intact skull known for *Eutriorchis astur*. There are currently no skeletal specimens of this species (Wood & Schnell 1986).

The three feathers (BM 1991.2.1-3) are the 7th, 8th and 9th primary feathers from the left wing. These feathers are most likely to have come from an adult male (C. Edelstam). The barring pattern on the primary feathers of the Ambatovaky specimen matches the feathers of the *Eutriorchis astur* skin held at the Sub-department of Ornithology, British Museum (Natural History), Tring.

#### *Locality information*

The raptor remains were found in the Ambatovaky Special Reserve, Province of Toamasina (Tamatave), 16°51'S, 49°08'E, lying at the base of a tree in a moist low-lying area, next to the trail which runs between the villages of Iampirano and Ranomena II. The area was covered in primary rainforest, at an altitude of 650 m. The site is four days walk west from the closest road, which was at Soanierana Ivongo, Province of Toamasina (Tamatave). It is worth noting that the area where the *Eutriorchis astur* was found is in the heart of the eastern rainforest belt. Ambatovaky Special Reserve is one of the largest rainforest reserves, with an area of 60,050 ha (IUCN/UNEP/WWF 1987). The forest in the area where the specimen was found was almost completely intact, and human disturbance was limited to small clearings around the villages of Ranomena II and Iampirano. The trail was typically used by less than five people daily.

#### *Discussion*

It is impossible to be sure how the eagle died. The fact that it was found by a trail suggests it may have been killed by a local villager; large raptors are disliked in many villages because some species will steal young chickens. Catapults or slings are used throughout Madagascar to hunt birds (such as pigeons and couas). When discovered, the raptor's body was entire, and had not been disturbed by scavengers since most of the bones were still articulated. This is surprising since insectivorous mammals (tenricids) and carnivorous mammals (viverrids) were common in the area. This was the only bird skeleton found by CJR during more than 12 months fieldwork in rainforest during the course of five years. It would seem likely that vertebrate corpses are quickly scavenged under normal conditions.

The Madagascar Serpent-eagle is obviously difficult to detect. During the 8-week survey of Ambatovaky, with two ornithologists on the team, no living example of this species was seen. Seven other raptors were observed at Ambatovaky: *Polyboroides radiatus*, *Accipiter henstii*, *Accipiter francesii*, *Buteo brachypterus*, *Falco newtonii*, *Falco eleonorae* and *Falco concolor* (Thompson & Evans, in press). The Henst's Goshawk was not recorded at the site of the Madagascar Serpent-eagle, but in lower altitude rainforest at 350–450 m, 20 km further to the east.

Sheldon & Duckworth (1990) report that the Madagascar Serpent-Eagle is extremely elusive. Their single observation was made just 500 m from their camp in an area of forest which was intensively surveyed for 18 days. The eagle is reported to be a sub-canopy bird (Sheldon & Duckworth 1990), which makes observation difficult. It appears to be a strict rainforest specialist; all the locality records are from the eastern rainforest belt, from primary forest (or secondary forest at the edge of primary forest) (Dee 1986).

The Marojejy observation and the Ambatovaky specimen were both from areas of primary rainforest that have suffered minimal human disturbance. In 1930 a specimen was collected from Analamazaotra, near Périnet (Dee 1986). This area has subsequently been visited and surveyed by many biologists over the past 30 years, but there have been no further observations. However Périnet, and the surrounding area, has become increasingly exposed to human disturbance in the form of population growth, deforestation, mineral extraction, tourism and road traffic; and so it seems probable that the serpent-eagle has been lost from this area as human disturbance has increased.

Preserving the Madagascar Serpent-eagle is one of the biggest challenges to conservationists working in Madagascar. Being apparently dependent on large areas of undisturbed primary rainforest, it is probably one of the first faunal elements to be lost as a result of human disturbance. Its elusive nature will make it difficult to confirm its presence within protected areas, and almost impossible to monitor natural populations. Clearly the most effective conservation measure must be to protect extensive areas of primary rainforest within its known range (between the latitudes 15° and 19°S). Significant suitable forest does occur within protected reserves, such as Marojejy, Masoala, Ambatovaky, Zahamena, and Mantady, and conservation initiatives are now underway in most of these areas. But we do not know what impact the inevitable fragmentation of the rainforest belt will have on the remaining Madagascan Serpent-eagle populations, or the critical minimum size of reserve needed to protect populations in the long term. More survey work is urgently required.

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## On the taxonomic status of *Phylloscopus affinis* and *Phylloscopus subaffinis*

by Per Alström & Urban Olsson

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*Phylloscopus affinis* and *P. subaffinis* were originally described as separate species, although there is some confusion surrounding the latter. The former was described by Tickell (1833) under the name *Motacilla Offinis* (lapsus for *affinis*) and the latter by David & Oustalet (1877) under the name *Oreopneuste affinis* (later Ogilvie-Grant (1910) proposed the now valid name *P. subaffinis*). This view was maintained by Ticehurst (1938), Vaurie (1959) and Cheng (1987). However, some recent workers, Williamson (1967) and Watson (1986), have chosen to treat them as conspecific.

*Phylloscopus affinis* is found from Pakistan and Kashmir eastwards along the Himalayas to Yunnan province, China, and from there northwards to Qinghai province, China. *Phylloscopus subaffinis* breeds in China from Yunnan and Sichuan provinces eastwards to Fujian province. Accordingly, the two species are mostly allopatric, but their distributions